DOCUMENT RESUME

ED 117 794 EA 007 850

AUTHOR Barbe, Richard H.
TITLE Systems Theory and Education's Goals.
PUB DATE Jan 75
NOTE 6p.; Paper presented to Society for General Systems Research (New York City, January 1975)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS Conceptual Schemes; *Educational Administration; *Educational Objectives; Educational Theories; Management Systems; *Program Planning; *Systems Approach; *Systems Concepts
IDENTIFIERS *General Systems Theory

ABSTRACT

Education is criticized both for failure to accomplish its objectives and for the inappropriateness of those objectives. Perhaps there is a need for an educational system that is not directed toward specific, predetermined goals. It seems that educators have adapted the engineering and management applications of general systems theory. Instead of extending systems theory to education, educators have adapted and adopted other field's applications. Almost all these borrowed applications are linear program models capable of attaining one specific product. The a priori establishment of relatively fixed objectives is characteristic of most "systems" instruction, but useful goal statements are hard to come by in education. A possible alternative is to adapt general systems theory itself, rather than its applications. Both summative and formative feedback may be used to refine and redefine goals, rather than to simply accept or reject the entire engineered system, as is often done now. Instead of trying to agree on where education should be pointing learners, educators can agree on mechanisms for making all decisions within the operating system. (Author/JG)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED117794

Richard H. Barbe
Professor of Educational Administration
Georgia State University
University Plaza
Atlanta, Georgia 30303

Paper presented to:
Society for General Systems Research
New York City
January, 1975

U S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

SYSTEMS THEORY AND EDUCATION'S GOALS

Education seems to be in what psychologists might call an identity crisis. The field is being criticized for failing to accomplish its objectives and, at the same time, for the inappropriateness of these objectives.

Educators, once seemingly secure in their anonymity, have been recently thrust into a visibility called accountability. This position is, to say the least, uncomfortable.

This has sent us scurrying for the relative comfort of some over-generalizations.

Among these is the "we-only-reflect-society" position. The extreme case of this was, I think, the statements of Harold Howe while he was U. S. Commissioner of Education. He said publicly, often, and with some justification, that if American people could get together and agree on what they wanted from their schools we had the resources, both personnel and technological, to provide any kind of education desired. Since the public hadn't or couldn't achieve consensus on objectives for education, they could hardly blame educators for not meeting specific goals.

EA 007 850

Perhaps, though, education needs a totally different alternative -- an educational system which is not directed toward the accomplishment of certain, specific, predetermined goals.

Lately it seems that what we have done in education is to adapt, to our purposes, the engineering and management applications of General Systems Theory. Instead of extending the general theory of systems to education, we have adapted and adopted other fields' applications.

And almost all of these borrowed applications suffer from one weakness -- they are linear program models capable of illustrating the attainment of one, rather rigid, certainly specific product. Usually they function only for one cycle, as well. There are many examples; but, perhaps it's enough to say that often courses taught which are titled "Educational (or instructional) Systems Design (or Planning)" focus on teaching students to engineer the educational process toward a "terminal performance objective (Mager)."

The a priori establishment of relatively fixed objectives is characteristic of most "systems" instruction. And, as I said earlier, specific but useful goal statements are extremely hard to come by in education. There are, perhaps, two resolutions:

One approach would be the development of increasingly sophis-

ticated techniques for defining objectives for units of education. Recent applications of such devices as the Delphi Technique and others are examples of this approach. Mager and others would help educators become more skillful at forming objectives out of vague purposes. Make the subsystem more open; that is, responsive, to its system.

And there is another alternative.

We can take advantage of the real dynamism illustrated in General Systems Theory. We can adapt the Theory and not the applications.

Both summative and formative feedback may be used to refine and redefine goals. A system may begin functioning with only rough approximations about directions. Feedback, then, is used to continually refine the direction of operation. In truth we ordinarily draw instructional systems models with, at least, the summative evaluation output feeding back into an operation called something like "define objectives." But in both our teaching and our practice we tend to use this feedback not to redefine the same objective, but, rather, to simply accept or reject the entire engineered system or to simply reengineer the components so as to increase the likelihood of achieving the goal next time around.

Parenthetically, the state of the art in education is such that

occasionally such feedback is used to reject the whole "systems approach."

It appears that, over-simply, we emphasize reengineering over redirectioning.

There is a clear danger in the quick acceptance of the refining-goal approach. This would be the too ready acceptance of the easily-obtained. We could too easily fall into patterns of expediency leading us to move toward the easily-achieved, the readily-attained, the quickly-accomplished.

But two things -- first, this pitfall is avoidable and, second, this danger is not much more frightening than some current practices of designing instructional systems toward the easy consensus or the easily-quantifiable.

The solution which meets the need and avoids the danger is based upon the recognition of the transactional character of process and goal. Instead of basing evaluative decisions on relative attainment, we can substitute a decision-making mechanism consistent with, or illustrative of, a consensual value. Instead of trying to agree on where education should be pointing the learners, we can agree on mechanisms for making all decisions within the operating system. In short, the qualities taught through educational systems will be the result of the values infused by our choice of decision-making structures.

Two analogs seem somehow relevant: First, a myopic hill-climber will move "upward" and will get to the (or a) top of the hill without being able to see it (or even know whether it exists) if every time the path forks, the steeper course is chosen. In our jargon, if every decision made within a system is consistent with a value, the outcome of the system will, likewise, be consistent with that same value. This will be the case regardless of the specific characteristics of such an outcome.

A second, and perhaps a better analog lies in the systems engineering engaged in by Thomas Jefferson, and others, just about 200 years ago. I don't recall their commissioning a colonial Rand Corporation to project the character of the world in the year 2000 before they began to shape the Constitution. They wrote no terminal performance objectives for their governmental system. Instead they designed a system with: mandated, recurrent, regular and special evaluations; required feedback and mechanisms for maintaining the fidelity of such information; and a set of decision-making structures which were designed to represent the authors' consensual value of government.

It would seem that we might use the models of these examples in the design of educational systems. We can apply our most sophisticated technology, our best data and our many skills. To do so seems the one way of dealing successfully with basic, current educational dilemmas.